MARINE REVIEW.

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Iron Ore Situation.

A general meeting of representatives of mining companies controling the entire Bessemer output of the Lake Superior region—Mesabi as well as the old ranges—is being held in Cleveland today, and as a result of this meeting it is quite probable that there will be considerable speculation as to prices of ore and lake freights. It can be said definitely, however, that there is little probability of prices being fixed on ore today, and in any event there is no prospect of anything being done in lake freights for some time to come. The Bessemer ore producers of the old ranges, who entered into and maintained an agreement on prices and output last year, and who are joined this year by producers of Bessemer ore on the Mesabi, have had three problems under consideration—first, the establishment of a differential governing prices of Mesabi ores; second, a new apportionment of output including the Mesabis; and third, the matter of fixing a price for standard Gogebic Bessemers, upon which prices of all other Bessemer ores are to be based. The two first questions will probably be settled at today's meeting, but the third one, that of a base price, may yet be held over for some time. The iron market in its present condition is entirely against ore dealers being paid the prices which they will demand, even if they should make the price of standard Gogebics as low as $3,75, and vessel owners who may contemplate a short trip away from home can do so in safety.

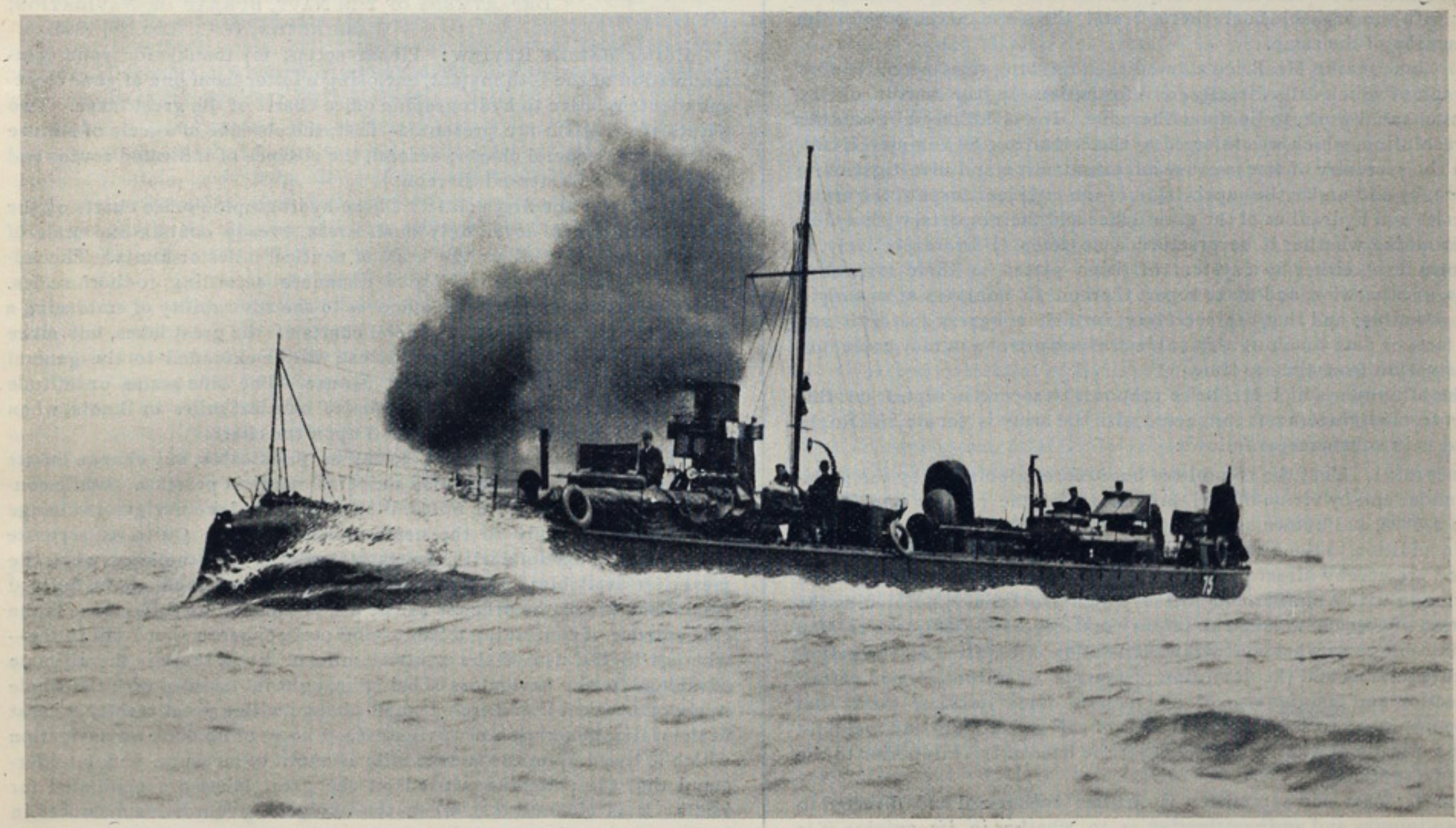
Major James Clarence Post.

The announcement of the death of Major James Clarence Post, corps of engineers, U. S. A., who was only a short time ago appointed to succeed the late Gen. O. M. Poe at Detroit, was a surprise in army engineering circles. It is a strange fatality, as Major Post had not yet entered upon his new duties and was visiting his fatherinlaw in New York when death occurred.

Major Post, whose last charge was at Portland, Ore., had directed some of the principal river and harbor works of the country. He graduated from West Point thirty years ago and has been in charge during that time of the construction of fortifications and the improvement of rivers and harbors on the South Atlantic coast, including South Carolina, Georgia and Florida. He has also been in charge of the improvement of rivers in West Virginia and Kentucky. From 1887 to 1889 he was principal assistant to the chief of engineers in Washington and had charge of the division of the office of the chief of engineers pertaining to the improvement of rivers and harbors and the bridging of navigable rivers. From 1889 to 1894 he was military attache of the United States embassy in London, England, and from 1894 until just previous to his death he was in charge of the improvement of the Columbia river, Oregon, from the Dalles to the mouth, including the base railway at the Dalles, the locks at the Cascades, the channel between Portland and the sea, and the bar at the mouth of the river. The latter work has just been completed, with an increase of depth from 20 to 30 feet at low water. Major Post was also engineer of the thirteenth light-house district while at Portland.

New Engineers' Club.

An effort is being made in Chicago to organize a social technical club, somewhat on the same lines as the Engineers' Club of New York, the membership to be composed of engineers, architects, railway officials and representatives of allied interests. Some of the best known engineers of Chicago are connected with the movement. Members of the committee in charge of the work of preliminary organization are Charles E. Billin, H. F. J. Porter, A. Sorge, Jr., and B. M. Gardner. It is proposed to provide all of the usual accommodations of a club, including a restaurant and a rather large number of sleeping rooms; and to maintain them in a thoroughly comfortable and serviceable manner on a low basis of dues. It is anticipated that the non-resident membership will be large and a special feature of the club. It has been suggested that charter members pay $50, this amount to cover initiation and one year's dues, and that others joining the club be required to pay this amount for initiation only; that the annual dues be $30 for resident and $20 for non-resident members; and that the club to be started in leased quarters within the central business portion of the city. A circular was sent out a short time ago with a view to obtain 150 pledges, and it is understood that 100 acceptances have already been received.



BRITISH TORPEDO BOAT UNDER FULL SPEED.

A fast French torpedo boat is credited with having developed a speed of 30¼ knots on a trial conducted by the builder.

Drawing on both Factions of Engineers.

Senator Brice has evidently anticipated hostilities between leading civil engineers and the army engineer corps in the matter of legislation pertaining to the construction of dams for the regulation of lake levels, and it would seem that he is trying to conciliate both of these interests. He is now possessed of a great collection of information on all sides of the subject, however, and if it should develop that the government engineers have been proceeding along a wrong course, in the big dredging jobs that they have conducted in connecting channels of the lakes, these engineers will probably not be successful in claiming now that the arguments of their opponents, who have for years favored the plan of a dam at Niagara, are impractical. The sentiment among vessel owners, and others interested in lake shipping, from whom Mr. Brice has received hundreds of opinions, is overwhelmingly in favor of giving the civil engineers an opportunity to make a thorough investigation of the lake outflow question and then present reliable data as to the kind of dams to be constructed and where they should be located.

In accordance with this opinion Senator Brice first presented a resolution in the senate calling upon the secretary of war to transmit information of subsidence of the waters of the great lakes during the last few years, and to what extent, if any, the deepening and widening of the natural channels connecting them have contributed to that result. The resolution also cal'ed upon the secretary to report whether, in his opinion, it will be practicable to control the waters of the great lakes and maintain them at a uniform level, from the head of Lake Superior to the foot of Lake Erie, by a system of dams or other works placed at their respective outlets; and, if so, to furnish an estimate of the kind of dam or dams or other works that will be required at the respective outlets, together with the probable cost thereof, and the time necessary for the construction of the same.

For some reason Mr. Brice allowed the foregoing resolution, the first paragraph of which calls directly for information on the merits of the present channel work, to lie upon the table. It was followed by another joint resolution, which was referred to the committee on commerce, calling on the secretary of war to cause an examination and investigation to be made, by and under the supervision of the engineer corps of the army, of physics and hydraulics of the great lakes and their outlets, with a view of ascertaining whether it be practicable to keep them, respectively, at a uniform level, either by a system of dams placed at their respective outlets, or otherwise, and make report thereon to congress at as early a day as practible; and that the secretary furnish congress also with any other facts or data touching this subject which are now or may come into his possession from time to time.

The bill under which Mr. Brice proposes to secure a report on this subject from engineers not connected with the army is senate bill No. 1,-339 and is in substance as follows:

SECTION 1. That the committee heretofore appointed by the president, under and by virtue of the provisions of the sundry civil act of March 2, 1895, and known as the International Deep Waterways Commission, in addition to the duties devolving upon and required of them by that act, are hereby directed and required, either by themselves or in conjunction with a similar committee which has been appointed by the dominion of Canada, to make an inquiry and report to congress as soon as practicable as to what concurrent legislation is required on the part of the United States and the dominion of Canada to authorize and permit the erection and maintenance of any dam or dams or other works that may be necessary to regulate the waters of the great lakes and maintain them practically at a uniform level, from the head of Lake Superior to the foot of Lake Erie.

SEC. 2. That said committee is further authorized and directed to make an inquiry and an investigation as to whether in its opinion it is practicable to control the waters of the great lakes and maintain them at substantially a uniform level at all seasons of the year by a dam or dams or other works placed in the Niagara river at the outlet of Lake Erie, and by a system of wing dams or other structures placed in the Detroit river, and the Saint Clair river, and in the Saint Mary's river, at or near the respective outlets of Lakes Saint Clair, Huron and Superior; and if so, to furnish an estimate of the probable cost of said structures, together with an estimate of the probable length of time required to build the same under any plan submitted, and report the results of such inquiry and investigation to congress at as early a day as practicable.

A third clause provides for traveling and other necessary expenses of the commission.

The Berlin Iron Bridge Co. of East Berlin, Conn., has just completed for the Windsor Co. of North Adams, Mass., a new fire-proof store house 70 feet wide and 125 feet long. The construction is composite, being iron and brick. The whole structure is fire-proof, no wood being used. Floors are made of terra cotta.

ALL NEW HYDROGRAPHIC CHARTS ARE KEPT IN STOCK BY THE MARINE REVIEW, 516 PERRY-PAYNE BUILDING, CLEVELAND.

LETTER FROM COMMANDER SIGSBEE.

AN INTERESTING COMMUNICATION FROM THE CHIEF OFFICER OF THE HYDROGRAPHIC SERVICE—A DISCUSSION THAT SHOULD BE READ BY VESSEL MASTERS.

The REVIEW prints herewith an extended letter from Commander Sigsbee, U. S. N., chief of the hydrographic service. We suggest to all vessel masters a careful reading of this communication. There are undoubtedly a very large number of competent men in charge of vessels of the best class on the lakes who will not agree with Commander Sigsbee as to the necessity of extending the use of nautical instruments here, or otherwise following the scientific attainments of ocean practice. They will conclude that the hydrographer, although ranking high as a naval officer, has something to learn of the secrets of making six or seven day-trips between Lake Erie ports and the head of Lake Superior with vessels carrying 2,000 to 4,000 tons. Work of this kind is demanded by owners who figure on minutes of delay, instead of hours or days. But we will refrain from further comment of this kind, for the reason that there is evidence of an honest intention on the part of the hydrographic office to render all possible assistsnce to the lake marine,and we hope the vessel masters will take up and discuss with the hydrographer, or his assistants on the lakes, the parts of this letter in which they are most interested. The communication was prompted by calling the attention of Commander Sigsbee to the fact that the chart of Lake Superior on one sheet, published recently by the war department, has met with more favor than the hydrographic chart of the same lake, which contains no scale of statute miles and no sailing courses.

DEPARTMENT OF THE NAVY, BUREAU OF NAVIGATION,
WASHINGTON, D. C.. Dec. 30, 1895.

Editor MARINE REVIEW: Please accept my thanks for your communication of the 14th instant, enclosing a letter from one of your correspondents relative to hydrographic office charts of the great lakes. Two points of criticism are presented—first, the absence of a scale of statute miles on the general charts; second, the absence of indicated routes and the courses to be steered thereon.

Relative to the first point: Those hydrographic office charts of the great lakes which cover only small areas already contain the scale of statute miles as well as the scale of nautical miles or knots. The volumes of "Sailing Directions" give distances according to both scales. There was some doubt in this office as to the advisability of embracing a scale of statute miles on the general charts of the great lakes, but since that scale seems to be desired, its use will be extended to the general charts, although as an additional feature. The side scales or latitude scales will serve as at present as scales of nautical miles or knots, when used according to directions printed upon the charts.

The office desires to avoid, so far as practicable, any change in its standards, which are based upon universal nautical practice. While conceding the scale of statute miles, it suggests that lake navigators change their unit of measure to the nautical mile or knot. Quite as accurate navigation can be done with the statute mile as with the knot, when the means are available; the suggestion relates to the benefits to be derived from one scale or the other. In the use of the statute mile, there is the convenience of continuing a habit—and perhaps more that I fail to see—whereas in the use of the nautical mile or knot, there is the ultimate advantage to lake navigators of being brought into accord with the whole range of nautical literature—a small change with a great result, at least to the rising generation of navigators. I know of no book on navigation which is based upon the statute mile as a unit of measure, and I understand that the patent logs used on the great lakes are graduated for knots. It is obvious that when the navigator records his distances in knots and plots them according to the scale of knots, the final result is the same as if he had recorded them in statute miles and plotted them by the scale of statute miles. Any intelligent navigator can pass in a single hour from the scale of statute miles to the scale of nautical miles or knots, so far as relates to the use of the Mercator chart.

Relative to the second point: Let me state that the nautical character of the hydrographic office and its work shonld be strictly borne in mind when suggestion is made. The aim of the office on the great lakes is not to publish maps but to provide nautical charts of just as good quality in every respect as those used on the oceans, and, so far as practicable, of the same kind. With the Mercator charts already provided and to be provided by the office, every navigator of the lakes will have at his command, so far as charts are concerned, every facility that is supplied on the oceans and connecting waters for the most delicate navigation. It is not deemed advisable to confuse charts with superfluous lines or data. It is in order to relieve them in this respect that volumes of "Sailing Directions" are published by the office in which are given, besides other information, a large number of routes, or more properly, courses and distances from point to point. Those who want routes printed upon the Mercator charts of the hydrographic office may have failed to note the extreme simplicity of the method for finding the course from one

point to another upon them. A navigator can lay down any desired route upon his own chart of the great lakes so readily that there is no real need for the services of the chart constructor in the matter. It is the facility offered by the Mercator chart in this respect that has made it the seaman's chart.

The tools in universal use with the charts, as you know, are as follows: A parallel ruler, say 18 inches long; a pair of dividers, say 6 inches long; a sharp pointed pencil, and a rubber eraser. Let us assume that it is desired to project a route from a point of departure, A, to a point of destination, B. Here is the simple rule: Align an edge of the parallel ruler on the points A and B and connect the two points by a straight line. This pencilled line—the route in fact—is the well known rhumb line of the Mercator chart. It makes a constant angle with successive meridians. Move the parallel ruler in a way to preserve parallelism to the nearest compass rose, so that an edge of the ruler shall be in contact with the center of the rose. Where that edge cuts the true compass of the rose, read the true course (course by true compass) from the beginning to the end of the route. So far, the Mercator chart gives a more favorable result than any other chart, because of the peculiar property of the rhumb line. To obtain the true course on any part of the chart, any true compass of the chart may be used. If there were any changes of magnetic variation shown on the chart between A and B, an intersection of the edge of the ruler with the magnetic compass of the compass rose nearest to A would give the magnetic course all along the route, but unfortunately for actual practice on the great lakes the magnetic variation changes rapidly on nearly all the important routes; therefore, to mark down any long route and to set down thereon a single magnetic course to be steered all along the line, would be to endorse a practice that might lead to very dangerous results. Perhaps long, straight routes might be subdivided into parts and the magnetic course given for each part, but there would still remain the question of local deviation. So, after all, routes printed on charts have but little more merit than to show mariners the ordinary lines of travel.

Distances also may be measured very simply by stepping off along the route intervals taken from the scales at the sides of the chart; namely, scales of latitude, never from the scales of longitude at the top and bottom. If the interval is taken from the latitude scales, which now appear on all the charts, the measure will be in nautical miles or knots; if taken from the new side scale, which is to be added, the measure will be in statute miles. It should be noted that the interval taken from the side scales must be taken near the middle latitude of the route or part of the route to be measured; that is to say, to measure the whole route from A to B, the interval must be taken near the middle latitude between A and B; if the diatance is to be measured from A to some intermediate point, C, then the interval must be taken near the middle latitude between A and C. I quote the simple direction already given by the chart: "Distances may also be measured by taking between the points of the dividers a small number of divisions near the middle latitude of the line to be measured and stepping them off on that line."

On harbor charts it is nautical practice to occasionally print routes in channels or fairways, together with courses and range lines, it being recognized that a vessel may lack time in a channel way to measure distances and lay off courses. If I were fully convinced that there is a general opinion among navigators of the lakes that routes should be printed upon the general charts of the hydrographic office, I should certainly conform to the general desire, but I wish to get ample evidence before I depart from any well established standard. I would prefer that the office should project by hand, upon any navigator's chart, any special route or routes that he may desire. Either the main office or the branch offices will undertake to discuss and project any desired route for any applicant. The navigators of the great oceans frequently make application to be informed of the best meterological routes for particular seasons from one part of the world to another.

The hydrographic office has much evidence that at least a large body of the navigators of the lakes look beyond the mere consideration of one or two peculiar details of a chart and discern plainly back of the charts the prospective benefits of the whole system. The work of the office being comprehensive and nautical in character, it does not stop with the publication of the chart alone, but connects therewith "Sailing Directions" containing much statistical and descriptive information that would be superfluous on the charts; light lists to give information relative to light-houses and light-ships; "Notices to Mariners," by means of which publications may be kept corrected for the latest information, together with special publications from time to time, and branch hydrographic offices, which afford for the use of navigators in general a complete library of charts, "Sailing Directions," etc. In addition, the office holds forth the promise to investigate for applicants questions relating to navigation, etc. The office has invited suggestions from many of the ablest navigators of the lakes and has received and acted upon their suggestions. The correspondence of the office in this respect has been very great.

I recognize that it is frequently difficult, in pursuing a lake route, as from A to B, to determine intermediate positions of the vessel, owing to the absence of visible land marks. This does not necessarily point to a modification of the charts, but does it not indicate the desirability, now that charts and other printed publications are available, of extending the use of nautical instruments on the lakes? Navigators who are well supplied with instruments of navigation do not feel an undue dependence on light-houses, buoys, etc. Light-houses and buoys should always be ample in number, but with or without them, instrumental methods relieve navigators from anxiety and tend greatly to the safety of the vessel. Undoubtedly, the best methods of navigation are those which enable the navigator to control the situation with his own means and with a minimum of outside assistance.

The best practice on the oceans and the seaboard in navigating a route of considerable length, say from A to B, is as follows: The vessel, proceeding from A, first obtains from the nearest compass rose of her chart her magnetic course at A; applies the local deviation of her compass thereto, and steers the resulting compass course. After proceeding some distance, which varies according to circumstances, she finds her position again by one method or another. She finds it by means of astronomical observations, or by compass bearings of objects on shore, or by one bearing and a sounding only, or by a single sounding, or by progressive soundings, or by measuring angles at the ship between objects on shore, or by ranges or otherwise; but having determined her position, she probably finds herself somewhat off the original route. She does not then, as a rule, endeavor to get back on the original route, but by the method pursued at A, shapes a new course for B, or because of altered circumstances, some new point near B. Since I recognize this as the best practice, you will understand more clearly why I hesitate to print fixed routes upon the charts. Having commanded four sailing ships and two steamers and having had practice in piloting very unexceptional both in extent and variety, I speak from experience in discussing these matters. I can not conceive myself as desiring that anybody should dictate my route in any place where there is ample water, assuming myself to have a sufficiency of charts, sailing directions, and other instrumentalities relating to the locality to be navigated. Moreover, it seems to me that all persons who use the hydrographic office charts strictly for navigating purposes must feel similarly.

I find it difficult to bring forward on paper what I might say without hesitation in conversation, but perhaps you will not take it amiss if I suggest that sextants and certain kinds of protractors for finding ships' positions might prove very beneficial on the lakes in connection with the charts, if those instruments are not already used.

Over long routes out of sight of land, the navigational sounding apparatus, for use with piano forte wire, would be invaluable for determining positions, or at least for indicating the set and drift of the vessel. With this apparatus, Atlantic liners get soundings in depths as great as 600 feet (100 fathoms) without stopping the engines. The value of sextants and protractors is that the positions obtained by them from land marks are entirely independent of the question of variation and deviation of the compass.

There used to be a not uncommon idea among shipmasters on the seas that there was considerable merit in navigating ships with an insufficiency of means, but I think that sentiment has about passed away, and I assume that it does not exist on the great lakes.

C. D. SIGSBEE.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Jan. 4, 1896:

	Wheat, bushels.	Corn, bushels.
Chicago	21,192,000	1,099,000
Duluth	8,763,000	8,000
Milwaukee	440,000	.....
Detroit	367,000	18,000
Toledo	872,000	171,000
Buffalo	3,103,000	114,000
Total	34,737,000	1,410,000

As compared with a week ago, the above figures show at the several points named a decrease of 373,000 bushels of wheat and an increase of 161,000 bushels of corn.

On Jan. 6 there was afloat at Chicago 449,000 bushels of corn and 86,000 bushels of oats; at Buffalo, 259,000 bushels of wheat, 223,000 bushels of oats, and 304,000 bushels of barley; at Duluth, 512,000 bushels of wheat; and at Milwaukee 176,000 bushels of wheat and 120,000 bushels of oats.

Secretary Hamilton J. Mills of the Dry Dock Associatign of the Lakes announces that the annual meeting of that organization will be held at Detroit on Thursday, Jan. 16, the day following the annual meeting of the Lake Carriers' Association.

New Officers Among the Engineers.

M. E. B. A. No. 37, Toledo, O.: President, George Reynolds; vice president, George Curtis; corresponding and financial secretary, E. D. Locke; recording secretary, John Marshall; treasurer, F. N. Weis.

M. E. B. A. No. 4, Chicago, Ill.: President, John Reif; vice president, Chas. Van Avery; financial secretary, D. W. Wise; corresponding secretary, Geo. Grubb; recording secretary, E. E. Morris; chaplain, John Williams; conductor, James Groves; doorkeeper, John F. Conley; treasurer, James Donley; trustees, T. F. Dowd, John Murdock and John Reif; delegates to national convention, T. F. Dowd and Geo. Grubb.

M. E. B. A. No. 27. Bay City, Mich.: President, L. C. Schwall; vice president, Thomas W. Graham; recording secretary, Henry Montaigne; financial secretary, N. P. Slater; corresponding secretary, J. A. Braman; treasurer, Louis Gelenas; conductor, J. L. Wiley; chaplain, Charles E. Harman; inside doorkeeper, C. G. Pierce; trustees, N. P. Slater, Louis Schwall, Thomas Graham; representative to national convention, J. A. Braman.

M. E. B. A., No. 2, Cleveland, O.: President, John N. Kirby; vice president, John Hayward; treasurer, M. B. Sturtevant; corresponding secretary, W. C. Clark; recording secretary, William Most; financial secretary, James L. Sanderson; chaplain, L. A. Weeks; doorkeepers, H. A. Burton and George Allen; trustees, M. B. Sturtevant, William Kennedy and H. McAuley.

M. E. B. A. No 9, Milwaukee, Wis.: President, J. C. Collins; vice president, Chas. Bendschneider; treasurer, Frank Coons; financial secretary, J. Conway; recording secretary, John Desmond; coresponding secretary, Charles G. Forsyth; chaplain, John Staley; conductor, George P. Chipman; doorkeeper, Edgar Doucett; delegate to national convention, J. C. Collins.

M. E. B A. No. 53, Marine City, Mich: President, Frank Ouelette; vice president, John Minnie; treasurer, Frank Parker; financial secretary, Henry Woods; recording secretary, E. H. Hill; coresponding secretary, Harry Stone; chaplain, Felix Hasler; conductor, Wm. Sicken; door keeper, Constandt Krause; delegate to national convention, Frank Parker.

M. E. B. A. No. 48, Sandusky, O.: President, Geo. C. Zanger; vice president, Pat Ragen; treasurer, Wm. F. Mayer; financial secretary, Carl V. Hart; corresponding secretary, John Erving; conductor, Geo. Moore; chaplain, H. Burkley; inside door keeper, H. Lockhardt; outside door keeper, J. Bankart; trustees, John Gaa, W. F. Mayer and Geo. Moore; past president, John Hegemer.

M. E. B. A. No. 78, Duluth, Minn: Past president, R. A. Webster; president, Alfred Beauchman; vice president, Armour Harvey; coresponding secretary, F. B. Barrows, No. 1228 E. Third street; recording secretary, F. B. Barrows; financial secretary, F. B. Barrows; treasurer, A. McGillivray; conductor, M. Ryan; chaplain, E. Wagner; door keeper, W. Morrison; delegate to national convention, A. McGillivray.

M. E. B. A. No. 67, Saugatuck, Mich.: Past president, W. S. Bradley; president, George Harvey; vice-president, J. B. Brown; recording secretary, Wayne Coats; corresponding secretary, George Harvey; financial secretary and treasurer, J. K. Dole; conductor, William Wilson; chaplain, William Rode; door-keeper, Henry Randal.

M. E. B. A. No. 3, Detroit, Mich.: Past president, A. L. Jones; president, T. J. Kelley; vice president, S G. Cowell; recording secretary, E. R. Dungan, corresponding secretary, W. A. Meddaugh; financial secretary, F. Kenyon; treasurer, E. R. Blanchard; conductor, F. Seiler; doorkeeper, F. McDonald; chaplain, W. F. Taylor; delegates to national convention, E R. Blanchard and E. R. Dungan.

Ship Master's Association—New Officers.

Lodge No. 3, Chicago, Ill.: President, H. T. Loftus; first vice president, C. H. Hubbard; second vice president, L. B. Coates; treasurer, Wm. Turner; secretary, F. B. Higgie.

Lodge No. 6, Milwaukee, Wis.: President, John Wright; first vice president, John McCoy; second vice president, Peter Anderson; secretary, John McSweeney; treasurer, Fred Starke; trustee for three years, Edward Saveland.

Lodge No. 7, Detroit, Mich.: president, A. J. McKay; first vice-president, L. Stoddard; second vice-president, H. C. McCallum; treasurer, Hiram Still; chaplain, Jas. Parsons; marshall, R. H. Sunderland; warden, Wm. Roach; sentinel, H. Berlin; corresponding secretary, R. Rhynes; financial secretary, Geo. A. Wilson.

Lodge No. 1, Buffalo, N. Y.: President, Frank J. McCabe; first vice president, Patrick O'Neill; second vice president, A. E. Huff; treasurer, Alex Clark; secretary, John Perew.

Lodge No. 4, Cleveland, O.: President, Joseph A. Holmes; first vice president, Richard Neville; second vice president, William Cumming, treasurer, Thomas Jones; financial secretary, W. W. Brown; recording secretary, Robert C. Pringle; chaplain, Capt. Toland; marshall, Capt. Nelson; warden, Capt. Woodford; sentinel, Capt. McNally.

Lodge No. 2, Port Huron, Mich.: President, W. E. Rice; first vice president, H. Zealand; second vice president, G. W. Pierce; treasurer, H. Davis; financial and recording secretary, Melvin A. Budd, No. 812 Walnut street; chaplain, D. M. Sinclair; marshall, C. J. Holmes; warden, Byron Brown; sentinel, L. Carey.

Lodge No. 9, Toledo, O: President, Henry Root; first vice president, James Cunningham; second vice president, Martin Christie; treasurer, Ike Gelispie; recording and financial secretary, E. G. Ashley; chaplain, Homer Durand; marshall, Geo. Sage; warden, Frank Nixon; sentinel, David Kelley; deligates to national convention, Henry Root and Duncan Stalker.

Around the Lakes.

Supt. J. C. Boyd of the Canadian lock at Sault Ste. Marie will spend most of the winter in Simcoe, Ont.

Melrose is the name selected for the lake barge that is being buil by the Montreal Transportation Co. at Kingston.

There is now only 6 inches of ice in Mud lake, and this much was made in the last few days. Boats could have navigated Mud lake up to Dec. 20.

Mr. H. M. Hanna, owner of the steel steam yacht Comanche, will spend the winter with a party of friends on a cruise to Florida and the West Indies.

Donald M. McKenzie, superintendent of the "Soo" locks, sailed from New York on the City of Glasgow for Glasgow on the 2nd inst., with his brother. They will spend about a month in Scotland.

Capt. Wm. G. Traverse, fifty-seven years of age, who sailed the steamer Progress for a number of years, died at Los Angeles, Cal., a few days ago. Capt. Traverse had gone to California in search of health.

The Mariners' Club is the name of a social organization in Buffalo that is made up of a number of lake captains and their wives. One of the first meetings of the winter was held, a few evenings ago, at the home of Capt. James H. Killeran.

Officers and directors of the] new Lake Superior & Ishpening Railway Co., which is building a road to carry ore from the Lake Angeline, Lake Superior and other mines near Ishpening to Marquette, are made up almost entirely of officials of the ore mining companies. They are as follows: President, Wm. G. Mather, Cleveland; vice president, James Laughlin, Jr., Pittsburg; treasurer, Wm. G. Pollock, Cleveland; secretary, James H. Hoyt, Cleveland; general counsel, Geo. W. Hayden, Ishpeming; directors, Wm. G. Mather, J. H. Wade, James H. Hoyt and W. G. Pollock of Cleveland, James Laughlin, Jr., and B. F. Jones, Jr., of Pittsburg, and Geo. W. Hayden of Ishpening.

In General.

George L. Watson is to design a racing schooner yacht to carry 20,000 square feet of canvas and to be built by D. & W. Henderson of Glasgow for the Emperor of Germany.

A large number of important changes among officers of the army engineer corpse were announced by the department a few days ago, but none of the officers stationed on the lakes are affected by the new orders.

Sir Edward James Harland, whose death was announced recently, was the moving spirit in the great ship building firm of Belfast. The Wolff interest in the firm of Harland & Wolff was largely the money interest of the concern.

Commodore Geo. W. Melville's commission as chief engineer in the navy will expire on the 16th inst. He has held the place during three terms of four years each, and it is now more than probable that the president will in a few days again send his name to the senate for confirmation.

It is quite generally admitted that congress and the president were right in accepting the ram Katahdin. Chief-engineer Melville of the navy now asks that he be permitted to lengthen the propeller shafts of the Katahdin, with a view to reaching a speed of 17 knots at a cost of not more than $5,000

Senator Brice is endeavoring to have printed in the government printing office 3,000 copies of the proceedings of the first annual convention of the International Deep Waterways Association, held in Cleveland recently. His plan is to have the books circulated by members of congress as a miscellaneous document. He has introduced a resolution with this end in view.

AN EXCELLENT LIBRARY FOR A MARINE ENGINEER, CHEAP—KEY TO ENGINEERING; WHAT AN ENGINEER SHOULD KNOW ABOUT ELECTRICITY; ENGINEERS' CATECHISM. ANY ONE OF THESE ARE WORTH A DOLLAR, BUT ALL THREE CAN BE HAD FOR $1. SEND TO THE MARINE REVIEW, 516 PERRY-PAYNE BUILDING, CLEVELAND, O. MONEY REFUNDED IF NOT SATISFACTORY.

Freight Rates on Anthracite Coal.

Brown & Co., vessel agents of Buffalo, charter vessels for a very large portion of the anthracite coal that is moved by lake out of Buffalo. They make up each year the average rates paid on all coal for which they provide vessels. Average rates on the coal that was moved through charters made in their office during 1895 were: To Duluth, 27 cents; to Chicago, 73½ cents; to Milwaukee, 50⅛ cents; to Toledo, 36⅗ cents. These figures do not, of course, correspond with average of daily rates that prevailed throughout the season. They represent the actual figures at which the great bulk of the Buffalo coal was moved. They are higher than daily averages throughout the season would be, for the reason that there was more coal moved late in the season when rates were high than was moved during the early part of the year when rates were low. The marked difference between average rates to Chicago and Milwaukee is explained in the following note from the Buffalo firm:

"You will notice that while, as a rule, the Chicago rate was about 5 cents a ton higher than the rates of Milwaukee, there is a very great difference in the average freight to these points. This is accounted for by the fact that in the earlier part of the season, when rates were lowest, the shipments were comparatively heavy to Milwaukee and light to Chicago. On the other hand, in the latter part of the season, when rates were highest, there were very large shipments to Chicago and light shipments to Milwaukee. For instance, in May we chartered 33,900 tons to Chicago and 57,544 tons to Milwaukee; in November we chartered 174,160 tons to Chicago and but 78,369 tons to Milwaukee."

Dates of changes in rates during the season and the averages for the different months follow:

Duluth: Average rate for season, 27 cents. Changes in rates during the season—May 7, 30 cents; May 13, 15 cents; June 5, 20 cents; July 8, 25 cents; August 22, 30 cents. Average rates for May, 19 cents; June, 19⅓ cents; July, 24 cents; August, 16⅔ cents; September, 30 cents; October, 30 cents; November, 30 cents; December, 30 cents.

Chicago: Average rate for season, 73½ cents. Changes in rates during the season—Apr. 30, 40 cents; May 10, 30 cents; May 28, 40 cents; June 12, 50 cents; Sept. 5, 60 cents; Sept 7, 65 cents; Sept. 12, 70 cents; Sept. 17, 75 cents; Oct. 3, 80 cents; Oct. 4, 85 cents; Oct. 4, 90 cents. Average rates for May, 30 cents; June, 45 cents; July, 50 cents; August, 50 cents; September, 67⅓ cents; October, 88⅔ cents; November 90 cents; December, 90 cents.

Milwaukee: Average rate for season, 50⅛ cents. Changes in rates during season—Apr. 20, 40 cents; May 7, 30 cents; May 27, 35 cents; June 13, 45 cents; Sept. 2, 55 cents; Sept. 7, 60 cents; Sept. 14, 65 cents; Oct. 4, 80 cents; Oct. 18, 85 cents. Average rate for April, 40 cents; May, 31⅔ cents; June, 39½ cents; July, 45 cents; August, 45 cents; September, 60⅝ cents; October, 83½ cents; November, 85 cents; December, 85 cents.

Toledo: Average rate for season, 36 cents. Changes in rates during season—April 6, 25 cents; June 18, 30 cents; June 19, 25 cents; October 16, 50 cents. Average rates for April, 25 cents; May, 25 cents; June, 25⅙ cents; July, 25 cents; August, 25 cents; September, 25 cents; October, 38 cents; November, 50 cents; December, 50 cents.

Dock Improvements.

Both the Lake Shore and the Pennsylvania railway companies are making extensive improvements on ore reciving docks at Ashtabula, and at Cleveland and other Lake Erie ports alterations and additions to docks are contemplated The Lake Shore company has just placed an order with the Brown Hoisting & Conveying Co. of Cleveland for twelve big hoists, to be placed on the west side of its lake front slip at Ashtabula.

On Lake Superior, work has been started on three big ore shipping docks—one for the Duluth, Mesaba & Northern Railway at Duluth, another for the Duluth & Iron Range Co., at Two Harbors, and a third for the new Lake Superior & Ishpeming Co., at Marquette. The dock at Two Harbors will be the fifth at that port. It would seem from opinions expressed by vessel owners and masters that Ashland, with its big source of ore supplies from the Gogebic range, will fall behind in the race for supremacy as a shipping point unless more improvements are made in its docks. One of the Lake Shore docks at Ashland, which are controlled by the Chicago & Northwestern Co., was enlarged a year ago and is now among the best on the lakes, but even during the past season there was strong objection to sending vessels to the No. 2 Lake Shore dock, which is not suited to rapid loading of big ships. With the certainty of a large number of the 400-foot ships being required in the Ashland trade next season, it would seem that something should be done toward improving this No. 2 Lake Shore dock.

DISCUSSION OF THE BUSINESS OF ELEVEN STEEL FREIGHT STEAMERS.

SUMMARY OF REPORTS COVERING THE OPERATION, DURING THREE YEARS PAST, OF VESSELS CONTROLLED IN THE OFFICE OF M. A. HANNA & CO., CLEVELAND, AND ENGAGED IN THE ORE TRADE.

STEAMERS.	YEAR.	Number of trips.	Hours run.	Miles. Run.	Miles. Per hour.	Ore Carried. Cargoes.	Ore Carried. Gross tons.	Coal Carried. Cargoes.	Coal Carried. Net tons.	Miscellaneous Cargoes Carried. Cargoes.	Miscellaneous Cargoes Carried. Net tons.	Fuel Used. Number of tons.	Fuel Used. Average lbs. per mile.	Fuel Used. Aver. cost per mile. cents	Lubricants used—Average cost per mile. cents	Provisions—Aver. cost per man per day. cents	Total time handling cargoes and fuel. Days.	Hours.	Minutes.	Lost time, repairs, dry dock, etc. Days.	Hours.	Minutes.	Cost, engineers' supplies and repairs.	Lost time on account of weather. Days.	Hours.	Minutes.
Cambria	1893	27	2,743	33,425	12.18	28	69,631	1	2,610	.....	.....	3,438	205	24	.78	43	55	5	.....	.....	.....	.....	$100 08	5	12	35
	1894	26	2,944	35,565	12.08	26	64,327	5	11,975	.....	.....	3,691	208	24	.80	32	78	20	.....	.....	15	30	204 74	6	12	30
	1895	37	3,567	43,994	12.33	37	85,851	.....	.....	.....	.....	4,452	202	21	.53	29	52	20	55	.....	.....	.....	232 06	6	0	37
Corsica	1893	27	2,768	34,590	12.49	27	73,071	.....	.....	1	2,196	3,632	209	25	.83	44	56	8	20	4	.....	.....	125 08	3	10	.....
	1894	26	2,982	37,565	12.59	26	68,340	2	4,930	.....	.....	3,967	211	25	.70	33	42	20	35	14	.....	.....	171 46	3	6	.....
	1895	29	3,135	40,870	13.04	29	69,996	.....	.....	.....	.....	3,910	191	20	.72	32	42	6	50	23	5	30	279 92	3	1	.....
Corona	1893	30	3,021	38,900	12.87	30	79,753	.....	.....	.....	.....	3,996	205	23	.98	40	50	18	40	.....	.....	.....	60 78	.....	16	.....
	1894	26	2,842	34,240	12.05	26	69,342	6	15,872	.....	.....	3,585	209	25	.68	35	65	21	38	.....	6	57	81 09	1	22	50
	1895	31	3,335	41,136	12.33	32	75,224	1	976	.....	.....	4,370	212	22	.62	32	52	10	28	8	21	.....	183 43	2	22	5
Saxon	1893	20	2,018	24,000	11.89	20	55,673	.....	.....	.....	.....	2,789	232	28	1.15	41	41	3	30	5	.....	.....	77 43	1	11	.....
	1894	22	3,133	36,175	11.55	22	53,281	3	7,440	.....	.....	3,866	214	26	.77	31	48	3	20	3	1	.....	111 92	5	15	22
	1895	31	3,144	39,882	12,68	31	77,126	2	5 291	.....	.....	4,062	203	21	.81	30	60	5	5	.....	1	50	228 74	11	9	15
German	1893	18	1,814	22,112	12.11	18	49,719	.....	.....	.....	.....	2,452	221	26	1.29	39	39	18	5	.....	.....	.....	127 78	1	12	.....
	1894	23	3,233	39,726	12.29	23	54,860	3	7,912	.....	.....	4,564	230	28	.73	31	60	20	45	.....	6	40	184 85	4	13	50
	1895	32	3,137	40,150	12,80	32	81,014	2	5,339	.....	.....	4,373	217	23	.80	31	65	14	40	8	2	30	253 11	3	20	10
Briton	1893	22	2,278	27,570	12.10	22	60,610	.....	.....	.....	.....	2,808	204	24	.99	43	46	12	15	1	.....	.....	77 29	.....	14	.....
	1894	21	2,955	35,991	12.18	21	50,617	6	15,864	.....	.....	3,822	213	25	.67	31	65	16	.....	5	20	15	96 66	5	4	20
	1895	29	3,272	40,497	12 38	29	70,234	2	5,051	.....	.....	4,229	209	22	.67	31	61	10	55	.....	.....	40	182 90	5	22	.....
Grecian	1893	25	2,407	30,000	12.46	25	69,220	.....	.....	.....	.....	3,422	228	27	1.01	42	63	22	20	.....	.....	.....	187 90	1	2	40
	1894	21	3,167	37,826	11.94	21	48,551	4	10,006	.....	.....	4.191	222	27	.75	33	45	19	6	6	11	43	127 71	5	17	12
	1895	29	3,498	44,980	12.90	28	65,613	1	2,164	1	2,326	4,832	215	23	.67	32	53	1	45	1	22	20	232 66	7	.....	35
Roman	1893	23	2,286	27,700	12.11	23	65,130	.....	.....	.....	.....	2,810	203	24	1.17	41	58	5	30	.....	.....	.....	89 40	2	20	.....
	1894	22	3,233	37,700	11.66	22	52,322	5	12,472	.....	.....	3,888	206	25	.83	33	51	5	25	.....	.....	.....	37 52	3	6	40
	1895	28	3,822	45,157	11.80	28	62,231	1	2,743	1	2,352	4,578	203	22	.68	32	47	3	.. ...	.....	2	10	158 70	4	4	45
Globe	1895	26	3,538	44,153	12.48	25	59,057	.....	.....	1	2,453	5,908	276	28	.91	36	47	10	25	.....	.....	40	491 99	3	7	40
Ira H. Owen	1895	21	3,804	36,406	9.57	16	31,790	7	14,342	5	10,508	2,916	160	17	.81	38	59	7	0	1	3	40	169 61	4	15	10
Parks Foster	1895	21	3,364	37,167	11.05	19	36,958	5	10,613	2	3,887	2,902	156	17	.81	34	50	13	3	6	24	15	237 36	12	17	15

Dock Improvements.

It is quite probable that the present congress will make an appropriation of about $400,000 for two first-class revenue cutters for the lakes, in addition to the one now being built at the Globe works, Cleveland. Senator Cullom has introduced a bill providing for the two vessels, and the measure will meet with urgent support from the treasury department.

Congress will be asked for an appropriation of $200,000 to enable the war department to make a river and harbor exhibit, similiar to that displayed at Chicago, at the international exhibition for navigation and fisheries, which is to be held at Kiel from May 13 to Sept. 30, 1896.

MARINE REVIEW

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O

SUBSCRIPTION—$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department on June 30, 1895, contained the names of 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,-642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels	1,755	857,735.00
Sailing vessels	1,100	300,642.00
Unrigged	487	83,082.00
Total	3,342	1,241,459.00

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
Year ending June 30, 1891	204	111,856.45
" " " 1892	169	45,168.98
" " " 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,353.00
Total	747	334,634.28

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

(From Official Reports of Canal Officers.)

	St. Mary's Falls Canal.			Suez Canal.		
	1894.	1893.	1892.	1894.	1893.	1892.
No. vessel pass'ges	14,491	12,008	12,580	3,352	3,341	3,559
T'n'ge, net registd	13,110,366	9,849,754	10,647,203	8,039,106	7,659,068	7,712,028
Days of Navigat'n	234	219	223	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

THE substitute introduced by Congressman John B. Corliss of Detroit for Senator McMillan's Detroit river bridge bill seems to be even more objectionable to some leading vessel owners than the original measure. Mr. Corliss' bill, which is understood to have been based on suggestions from Geo. Y. Wisner, engineer of Detroit, provides for only one pier in the center of the river and two spans of 1,100 feet each, with a height of 142 feet above mean water level. Senator McMillan's bill provides for two piers, giving one wide span in the center of the river with two small ones on the side. A big pile of masonry directly in the center of the river is declared by the vessel owners to be a most serious objection to the Corliss plans. It may as well be understood anyhow that the vessel owners will under all circumstances oppose a pier or piers in the navigable part of the river, and their opposition to a bridge of any kind will be as strong as it ever has been. Fifteen or twenty years ago the bridge builders did not offer in their plans a span of more than 300 feet. Now they propose 1,100-foot spans. Then they said a tunnel could not be built on account of the difficulty that would be encountered in handling quick sand. Now big cylindrical shields are forced into quick sand, and by the use of air compressors and other apparatus the construction of a tunnel is rendered even less difficult than it would be if some kinds of material other than quick sand was encountered. Still the railways refused to build a tunnel, on the claim that their passenger traffic would suffer on account of it. This argument is now met by the fact that electric locomotives will do away with the smoke nuisance in tunnels. The tunnel is more costly, but the railway officials do not press this feature of the question, as they know it would not prevail against the overwhelming importance of a commerce in the Detroit river that is greater than that of any other waterway in the world.

IN CALCULATIONS regarding freights for the season of 1896, neither vessel owners nor shippers should conclude that all new vessels now under contract in lake ship yards will be available during all, or even half, of the coming season. As shown in the REVIEW of last week, the ship builders have orders for sixty-five vessels of all kinds, but only forty-two of these are freight carrying vessels—thirty steel and twelve wood. These forty-two vessels will carry on a single trip an aggregate of about 136,000 gross tons, and it is estimated that they will move during a full season about 2,450,000 tons on 14½ feet draft. But a large number of them will not be out until Sept. 1, and the completion of a few will be delayed until Oct. 1, so that it is safe to roughly estimate the increase in vessel capacity at not more than 1,300,000 gross tons. Especially is this true when we take into consideration the loss last season of vessels capable of carrying on a single trip about 49,000 net tons. Of course the number of trips made in a season by vessels of the kind that were lost in 1895 is small as compared with fast running modern ships, but the item of tonnage lost has, nevertheless, been found to be more important than was expected.

WHEN Germany opened the North sea-Baltic canal some time ago the nations of the earth joined in a big naval display, and festivities attending the celebration extended over several days. The canal was pronounced a great commercial enterprise. Let us compare the business since developed in this canal with the commerce of St. Mary's Falls canal, which connects Lake Superior with other bodies of water in the chain of great lakes, and about which our own government makes no fuss whatever. During November, 1895, 1,394 vessels, whose total net carrying capacity was 157,172 register tons, passed through the North sea-Baltic canal. This is equal to about 7 per cent. of the business of St. Mary's Falls canal for a single month. The average number of vessels per month passing through the St. Mary's Falls canal during seven and a half months of navigation in 1895 was about 2,400, and the average freight tonnage of the canal per month was about 2,000,000 net tons. These figures may be verified in detail by reference to the MARINE REVIEW of Dec. 19, which contains the full report of the war department covering St. Mary's Falls canal commerce during 1894 and 1895.

EASTERN manufacturing concerns and mercantile houses that provide auxiliary machinery and various articles of equipment for ships are finding the lakes their best source of trade these days. In most cases the heads of these concerns are giving personal attention to the extensive business that has developed in the ship yards. Within the past few weeks, no less than a dozen representatives of firms furnishing electric light plants, machinery forgings, windlasses, capstans, electric light fixtures, anchors, etc., have called at the office of the REVIEW, preparatory to a trip around the lakes. They were all of the opinion that the business in sight warranted personal interviews, in addition to the ordinary solicitation by correspondence, and they were furnished with the necessary information as to men in charge of matters in their several lines at the ship yards and in the offices of vessel-owning firms.

AT THE annual meeting of the Lake Carriers' Association, to be held in Detroit next week, it will be found from the treasurer's report that the receipts from dues in 1895 have been sufficient to dispose of a few old debts, in addition to meeting all requirements for the year. It will be necessary to collect about $400 of dues as yet unpaid in order to fully balance accounts, but this will be done, and it may be said now that the association is on an even footing as regards money matters, with prospects of an increased income on account of new vessels next season, if the present tonnage assessment is continued.

Belleville Boilers for Eight More British Cruisers.

Editor MARINE REVIEW:—The following important applications of Belleville boilers in the English Navy have been decided upon for cruisers about to be built or already under construction: Cruisers of 10,-000 horse power—Gladiator, Arrogant, Furious, Vindictive. Cruisers of 16,500 horse power—Niobe, Diadem, Andromeda, Europo.

These applications are the result of the excellent trials that have just been made of these boilers on board the Sharpshooter, and answer in a peremptory way the passionate attacks of which these boilers have been the object from builders and partisans of the cylindrical-tubular boilers in Great Britain.

MIERS CORYELL.

Cleveland, Jan. 4, 1896.

Capt. George R. Bennet and others have purchased from Runnells & Sinclair the steam barge Cleveland for $6,500 cash. She will continue in the lumber trade, towing the barge Magnet and two others. Another sale is that of the Detroit river ferry steamer Hope to Capt. Edward Maytham of Buffalo and Edward Baxter of Fort Erie, Ont., for $5,000 cash. The vessel will be rebuilt to run on the Canadian side of Niagara river.

Harvey's marine bureau at the Sault has purchased an interest in the steam yacht Waupoose, 40 feet long and 9 feet beam, and will use her for marine reporting next season. On account of vessels sometimes using the Canadian lock a large number of letters and telegrams were not delivered in time to be of any use. The Harvey bureau now proposes to bring a tug into service, in order to insure delivery of all messages.

Treasury Department Records of Ship Building.

The following statement from the United States commissioner of navigation shows that during the quarter year ended Dec. 31, 1895, there were built in the United States 128 vessels of 29,335.73 gross tons. Seventy-three of these were sailing vessels and fifty-five steam vessels. The sailing vessels aggregated 9,609.69 gross tons and the steam vessels 19,726.04 gross tons. Fifteen of the steam vessels, aggregating 11,441.98 tons, were built of steel. No steel sailing vessels were built during the quarter.

SAILING AND STEAM VESSELS BUILT IN THE UNITED STATES AND OFFICIALLY NUMBERED. AS SHOWN BY THE RECORDS OF THE BEREAU OF NAVIGATION, TREASURY DEPARTMENT, DURING THE QUARTER ENDED DEC. 31, 1895.

	WOOD.				STEEL.		TOTAL.	
	SAIL		STEAM		STEAM *		SAIL & STEAM	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
Atlantic & Gulf coast	59	7,4 8.76	12	2,842 85	10	5,996.66	81	16,298.27
Pacific coast	12	2,088.84	7	496.05	1	691.05	20	3,275 94
Great Lakes	2	62.09	3	2,091.83	4	4,754.27	9	6,908.19
Western Rivers	...	.....	18	2,853.33	...	.....	18	2,853.33
Total,	73	9,609.69	40	8,284.06	15	11,441.98	128	29,335.73

*No steel sail vessels built during the quarter.

During the previous quarter 200 vessels of 59,054 89 gross tons were built, and of these 108 were sailing vessels and ninety-two steam vessels. The tonnage of the sailing vessels was 20,166.78 gross, and that of the steam vessels 38,888.11 gross.

Plans for a big Naval Reserve Force.

Representative Amos J. Cummings of New York has a big scheme to provide naval reserve forces from officers and men on merchant vessels of the United States. Mr. Cummings' plans are combined in a bill, H. R. 2,563, which he introduced a few days ago, and which was referred to the committee on naval affairs of which he is the senior democratic member. The bill is as follows:

SEC. 1. That officers and men between the ages of eighteen and forty-five, serving in the mercantile marine of the United States, as well as also all ex-officers and formerly enlisted men of the navy, and who are citizens of the United States, who shall so elect, and who shall be found physically and professionally qualified by a board of naval officers appointed by the secretary of the navy, shall be enrolled in a naval reserve for navigating duties, for periods not exceeding five years, in grades and ratings for which they may be found qualified, and which shall be established by the president, coresponding to grades and ratings existing in the navy; provided, that such officers and men shall be held to be in the United States service during such periods of enrollment and may be called into active service in time of actual war, or when the danger of war is imminent, and shall obey such call under the pains and penalties of desertion; and provided further, that the officers and men of the life saving service, the light house service, the revenue marine and the coast signal service may be enrolled in the naval reserves and may be assigned to such duties and receive such annual instruction in naval warfare as the president may prescribe.

SEC. 2. That each officer and man of the navigating naval reserves shall be required to report in person once each year to such naval authority as the secretary of the navy may select for training, not exceeding thirty days in any one year, and shall satisfy such inquiries and examinations prescribed by the navy department as may be necessary to ascertain his continued fitness for duty; and upon the completion of this annual requirement each petty officer shall receive $30 and each man of inferior rating $20; that no annual premium shall be paid, except when this report in person is made, and that if the examination shows unfitness for duty in the grade or rating held by any navigating naval reserve officer or man he shall be at once discharged from the service without this compensation.

SEC. 3. That the navigating naval reserves shall not be called into active service in time of peace except for purposes of training, but such officers and men of this branch as may elect to join the colors for naval training during the period of annual drill of the organized reserve forces shall be mustered into the naval service of the United States for that period, and when in such active service receive the same pay and allowances as the organized reserve forces.

SEC. 4. That any vessel commanded by an officer of the naval reserves, and which shall have in her complement five other officers and men belonging to the naval reserves, shall have the right to fly from her mainmast head a distinctive flag or pennant with the letters U. S. N. R.; provided, that the color, shape, and size of such flag or pennant shall be prescribed by the secretary of the navy and furnished by the navy department.

SEC. 5. That all officers of the naval reserves holding commissions from the United States shall be borne upon the naval register as naval reserves.

SEC. 6. That the entire organization, administration, compensation, training, and control of the naval reserve forces exercised by the government of the United States shall be under the direction of the president and be confided to the department of the navy, and the secretary of the navy is hereby authorized to detail officers and petty officers of the navy to act as inspectors, instructors, and assistant instructors of the naval reserve, and to be the responsible custodians of the property of the United States issued for the training and arming of the said forces.

SEC. 7. That the sum of $100,000, or so much thereof as may be required, is hereby appropriated for carrying into operation this act, and the same shall constitute a continuous annual appropriation, payable out of any moneys in the treasury not otherwise appropriated, for the purpose of inaugurating and continuing the operation of the naval reserve of men contemplated by this act, the same to be expended under the direction of the secretary of the navy.

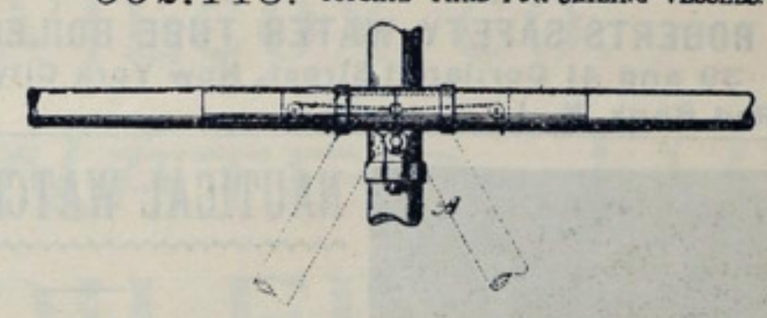
Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

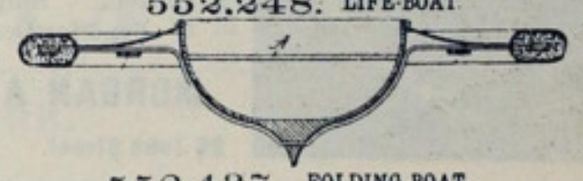
552,113. **Topsail yard for Sailing-vessels.** James Frye, Philrdelphia, Pa. Filed Apr. 25, 1895. Serial No. 547,095.

Claim in a topsail yard the combination of the parts D′ and D², a portion C to which said parts are hinged, braces B and B′ hinged to and supporting said portion C, a draw bolt E to reinforce said parts D′ and D² and means for operating said drawbolt.

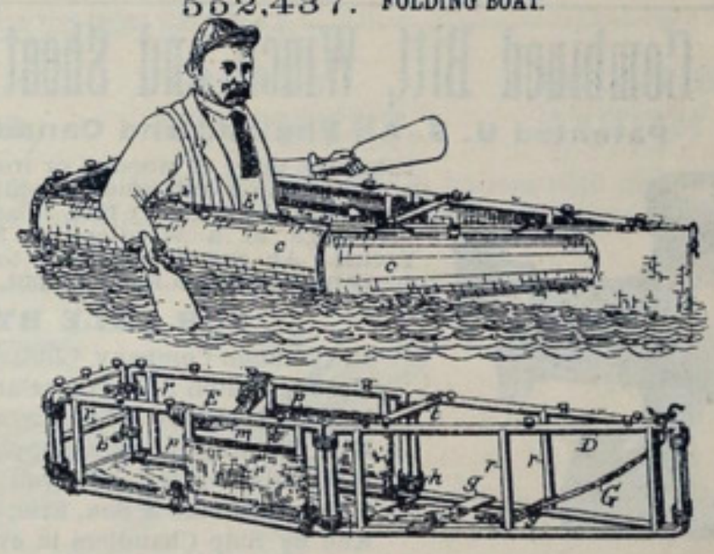
552.113. TOPSAIL-YARD FOR SAILING-VESSELS.



552.248. LIFE-BOAT.



552.437. FOLDING BOAT.



552,248. **Life Boat.** Algernon L. Hassard-Short, Tarborough, N. C. Filed July 23, 1895. Serial No. 556,920.

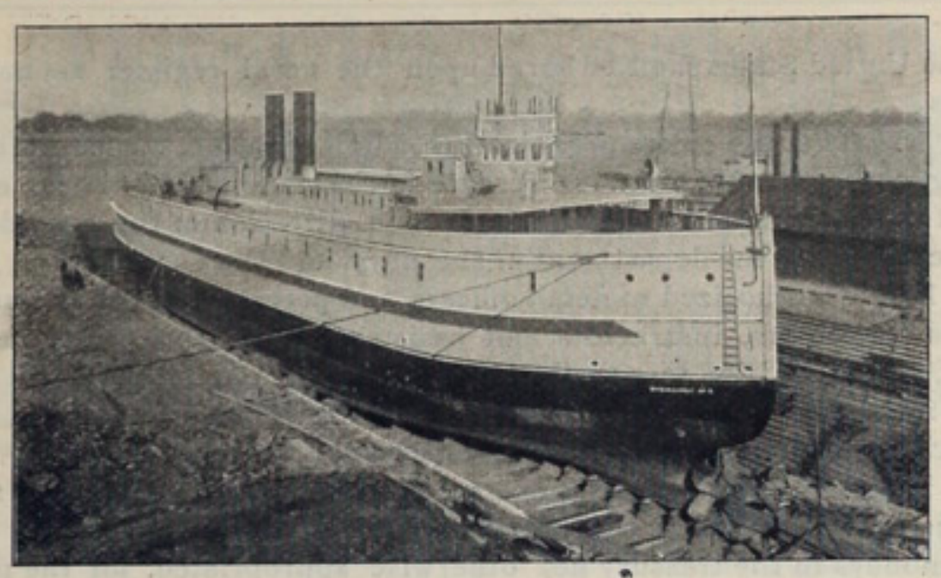
Claim the combination with a life boat, of a frame which is elliptical in form and pointed at each end, and which surrounds said boat, and is supported at a distance therefrom, by means of strips which are connected therewith, and which are passed beneath the boat and through the keel thereof, and by rods which are connected with the boat, said frame being provided with a central core with which said strips and rods are connected, and said frame being filled in with light material, such as cork or similiar substances.

552,437. **Folding Boat.** Frederick Heather, Yonkers, N. Y. Filed July 31, 1895. Serial. No. 557,716.

Claim in a folding-boat, the combination with a removable flexible covering, of a framework consisting of sections to form the sides, sections to form the bow, and a section to form the stern, the several sections being connected to each other at their meeting edges, and a bottom section which is hinged to one of the side sections

---

Thomas Drein & Son's metallic boat manufactory at Wilmington, Del., was destroyed by fire last week and the loss amounted to about $10,000. The firm has leased a place near by and have commenced already to build boats and rafts to fill next season's orders. In view of the delay caused by the fire, lake ship builders ought to place their orders at once for spring delivery. The burnt building will be rebuilt at once.



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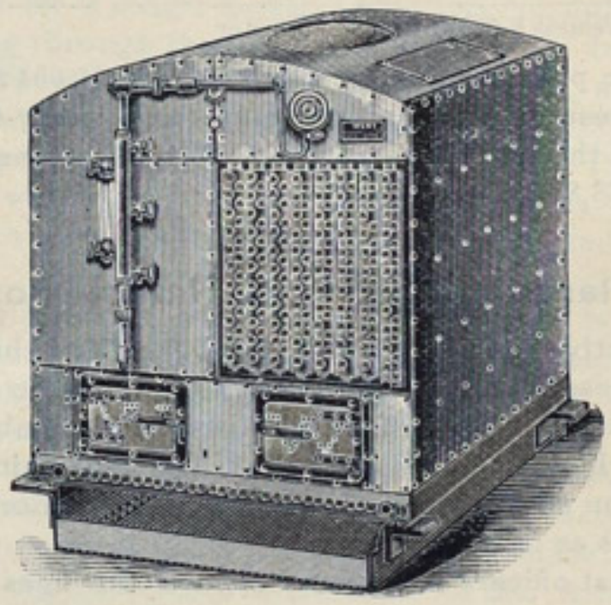

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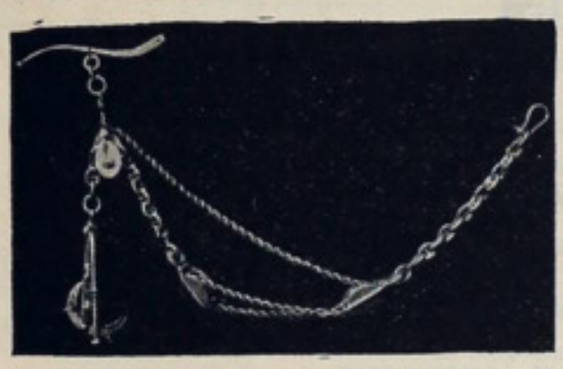

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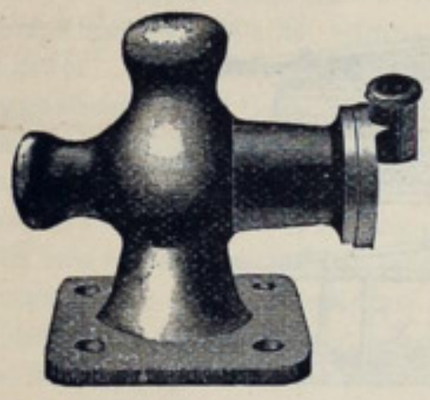

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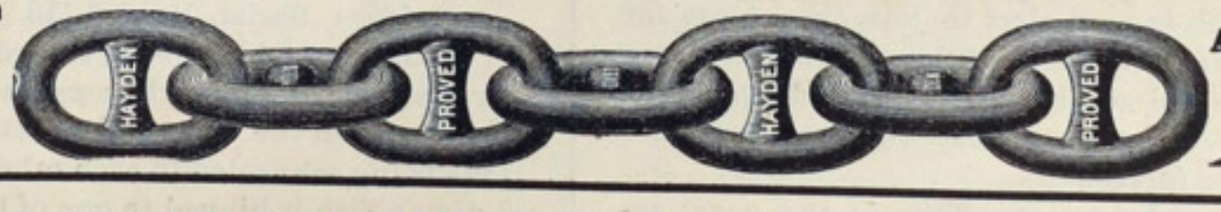

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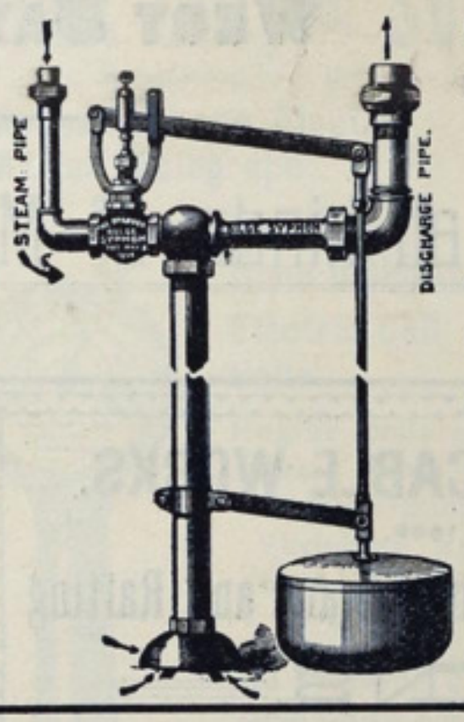

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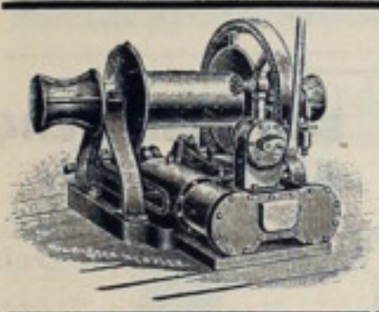

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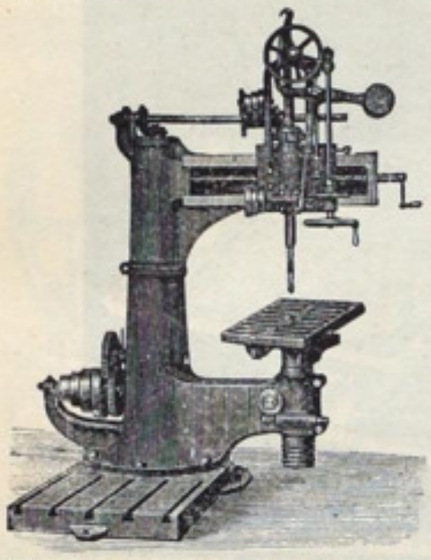

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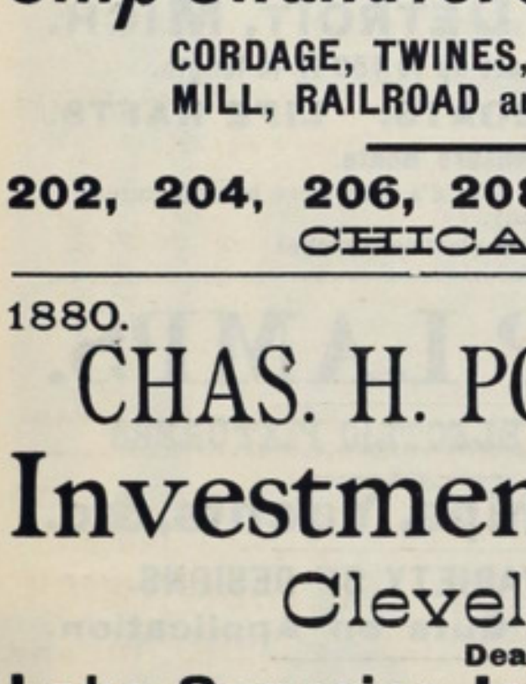

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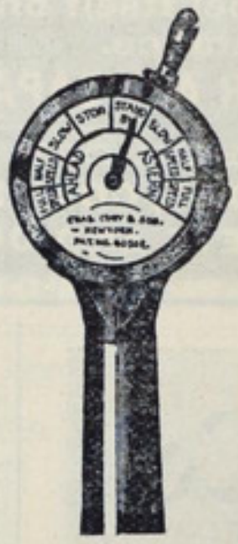

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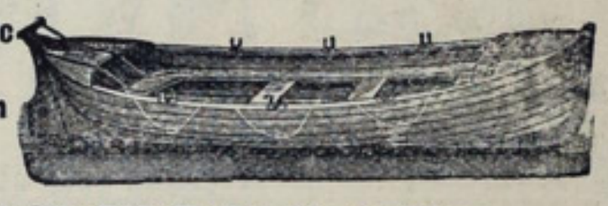

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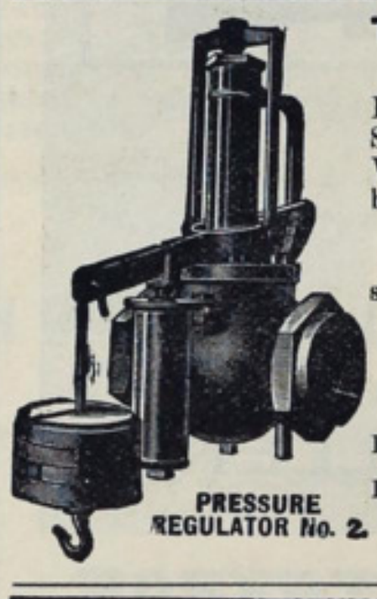

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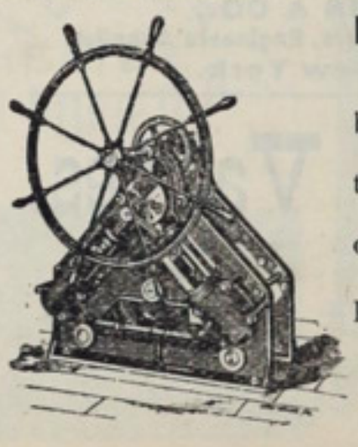

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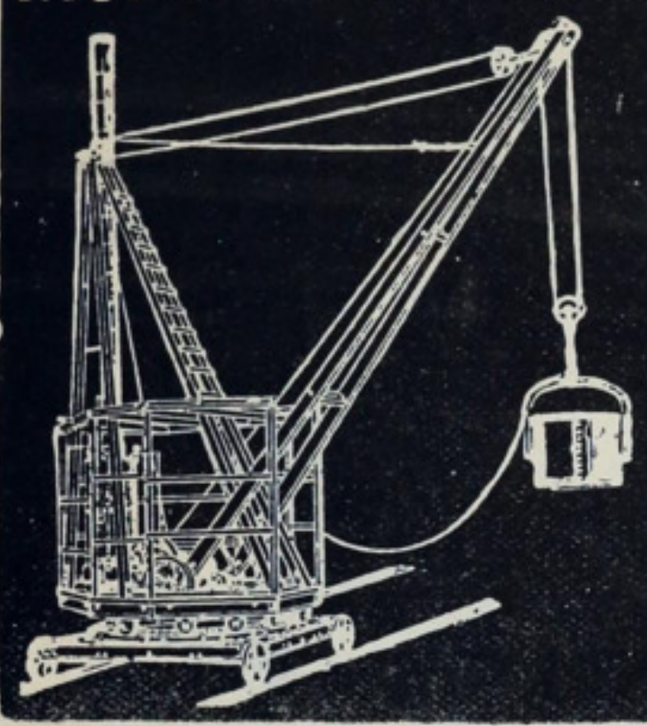

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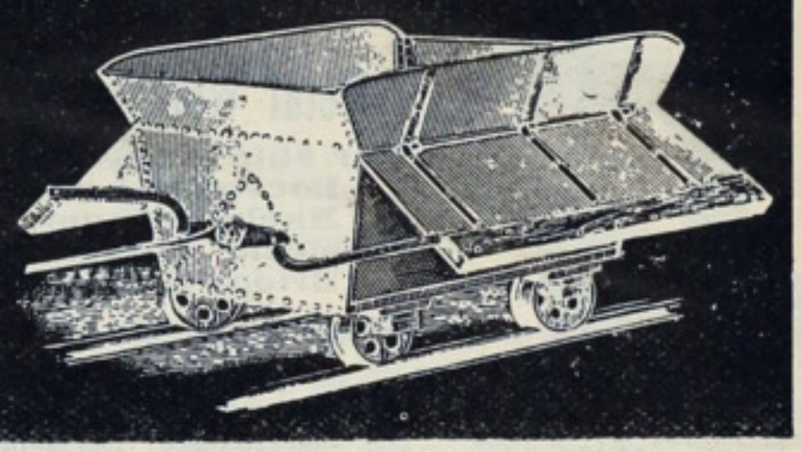

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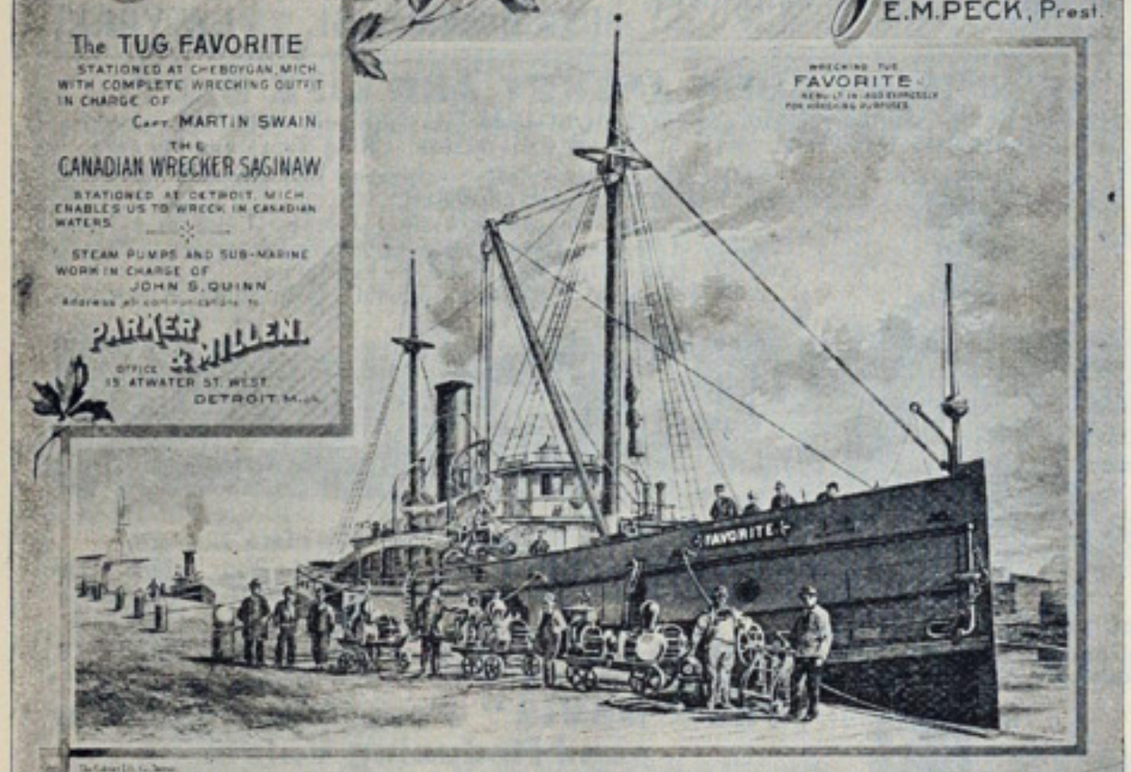

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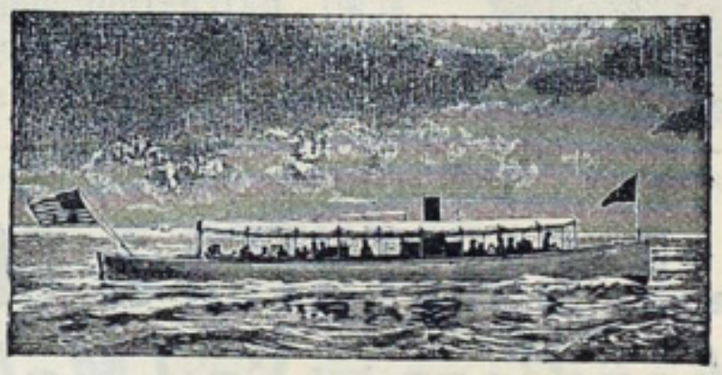

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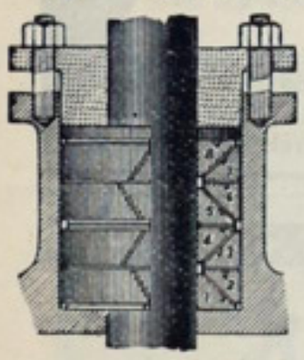

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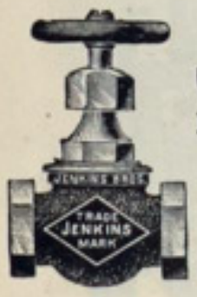

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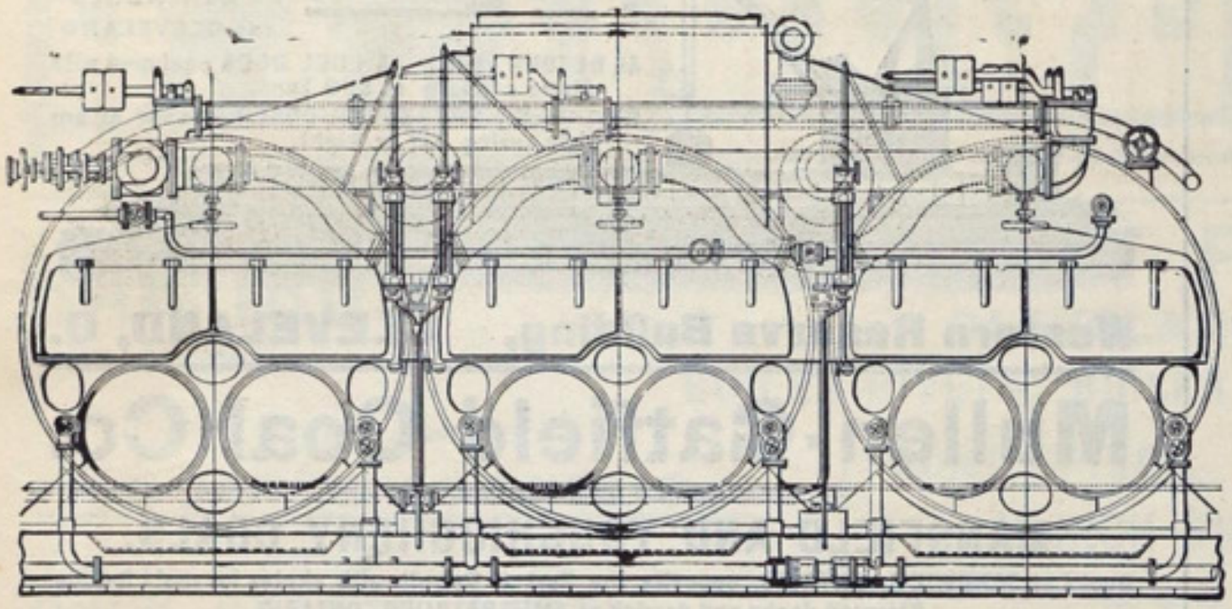

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		Feet.	*Feet.*	*Feet.*	*Feet.*	*Feet.*	
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Cleveland, Ohio	....do	325	340	55	.....	14	
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Detroit, Mich	Detroit, Dry Dock Co	365	378	79	90	16	Timber.
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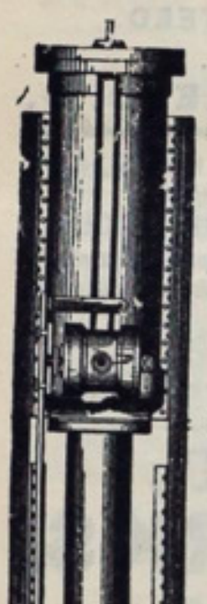

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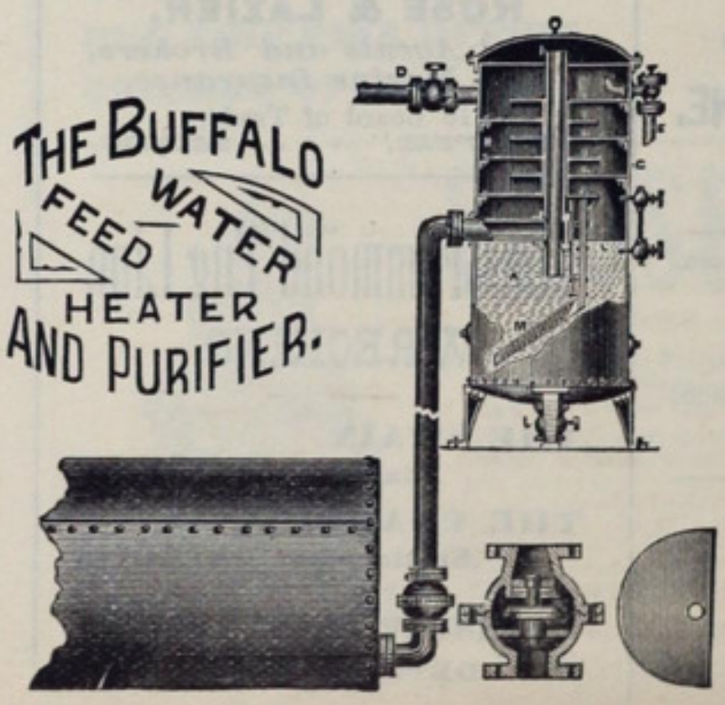

REFERENCES.

A.—Settling chamber.
B.—Boiler.
C.—Feed pipe to boiler.
D.—Steam pipe.
E.—Water supply pipe.
F.—Check valve.
G.—Spray disks.
H.—Spray chamber.
I.—Equalizing tube.
J.—Blow-off pipe.
K.—Automatic shut-off valve.
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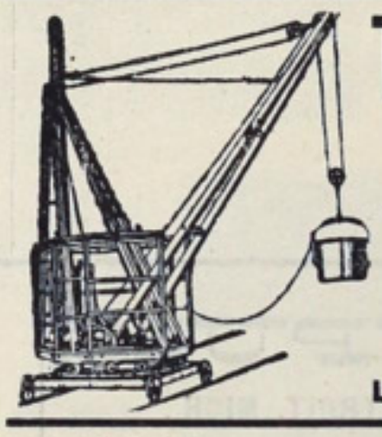

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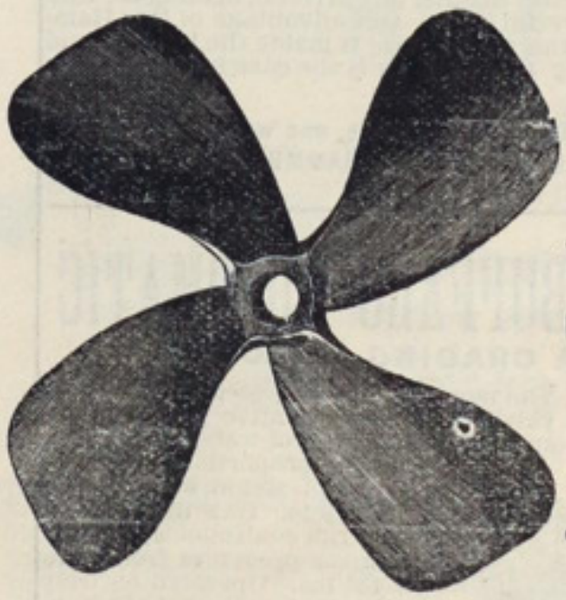

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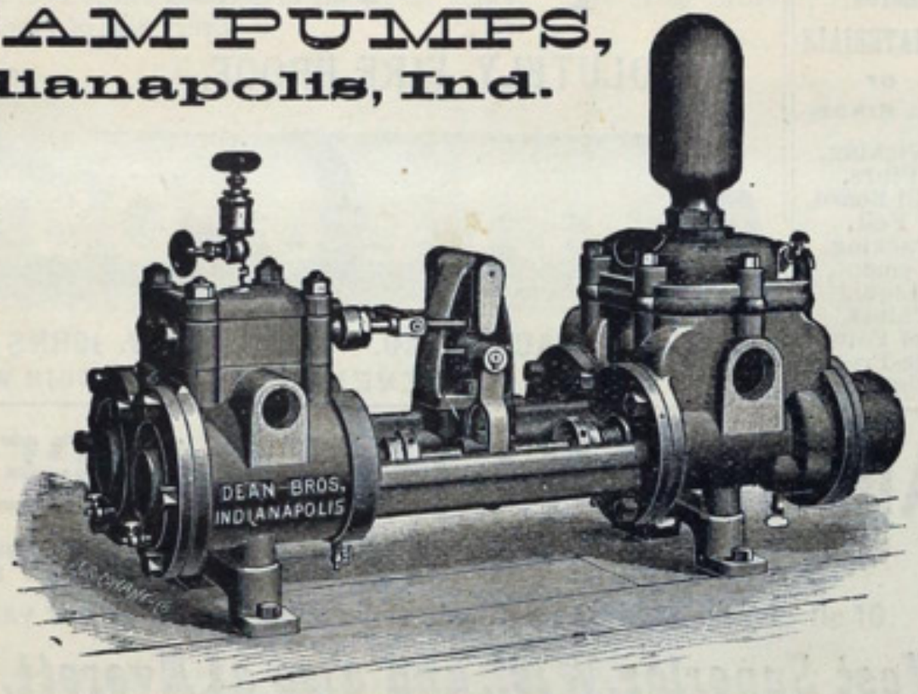

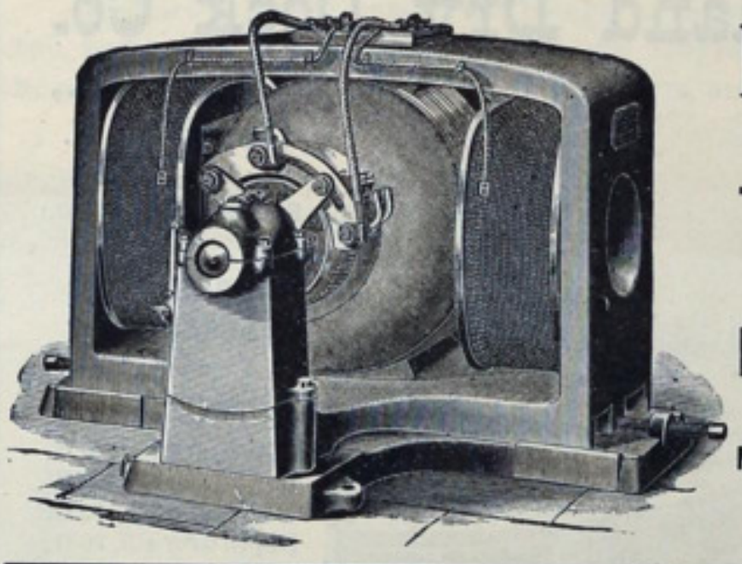

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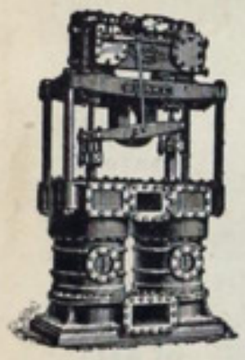

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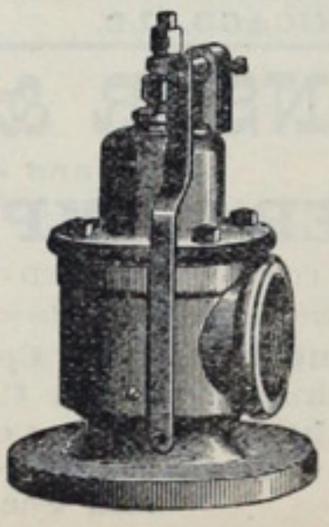

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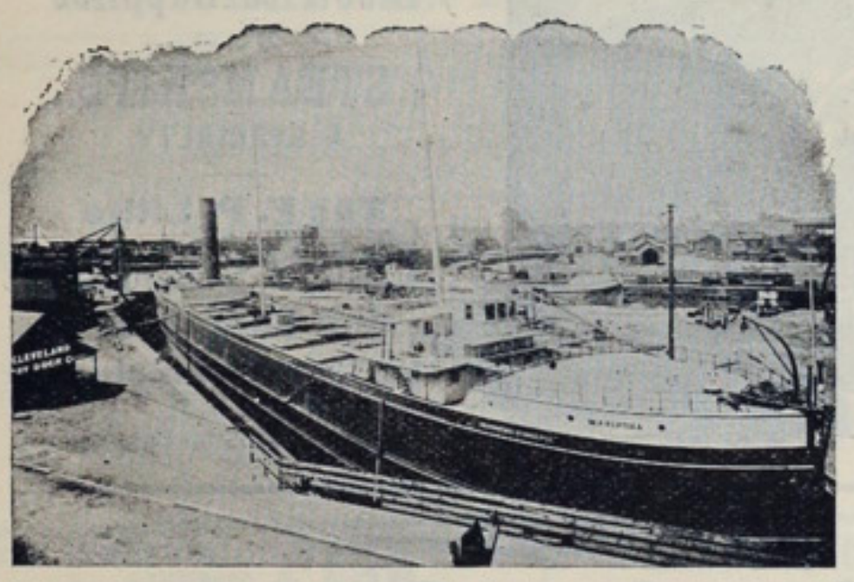

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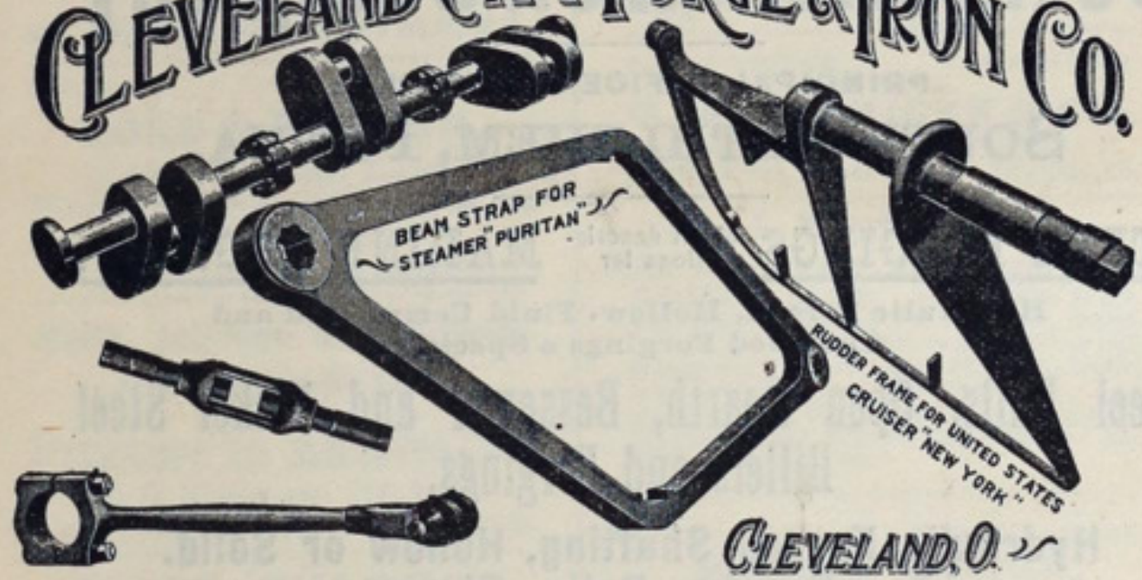

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IRON OR STEEL FORGINGS FINISHED COMPLETE, ROUGH MACHINED OR SMOOTH FORGED ONLY, OF ANY WEIGHT.
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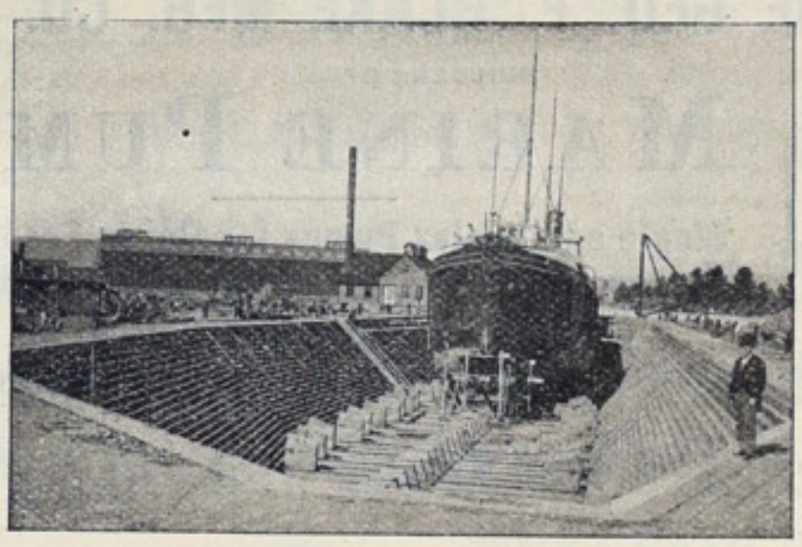
Of all classss built on the Shortest Possible Notice at our yards at

West Superior, Wis., and also at Everett, Wash.

Photograph of 300 ft. Boat in Dock.

Plates & Material Always on hand to Repair all kinds of Metal Ships in Shortest Time.



Best Quality of Oak instock for Repairing Wooden Vessels of all Classes.

SIZE OF DOCK.

Length, extreme	537 feet.	Entrance, Top	55 feet 9 in.
Breadth, Top	90 " 4 in.	Entrance, Bottom	50 "
Breadth, Bottom	52 "	Depth over Sills	18 "

LARGEST DRY DOCK ON THE LAKES.

Prices for Repairs and Docking same as at lower lake ports

SUPERIOR, WIS.

A number of Propellor Wheels in stock at Dry Dock.

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ALKALI WATER PURIFIER!

A Pure Chemical for the safe Removal and Prevention of Scale in Steam Boilers In use by many of the larger Steamship lines on the great Lakes. Guaranteed

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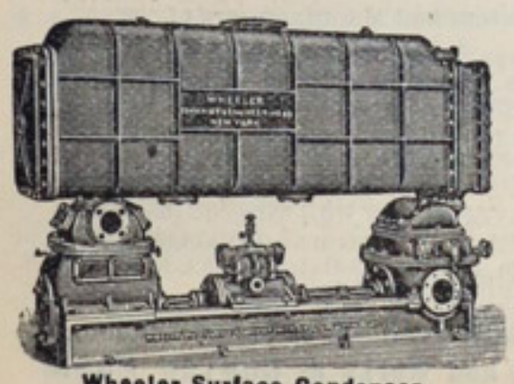

Wheeler Surface Condenser.
Mounted on Combined Air & Circulating Pumps.

WHEELER'S IMPROVED SURFACE CONDENSERS

MOUNTED UPON COMBINED AIR AND CIRCULATING PUMPS.
Sole Proprietors and Manufacturers of the

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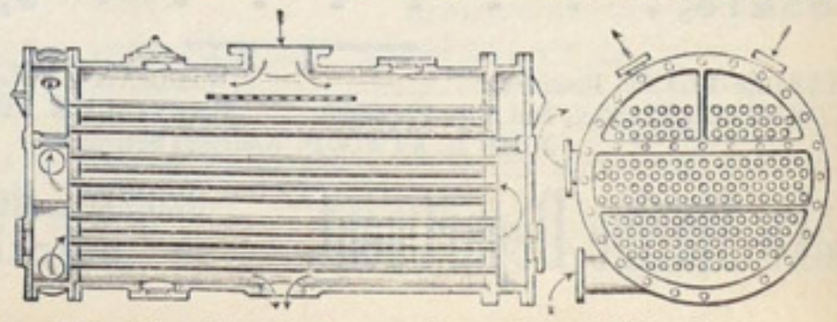
Volz Patent Combined Surface Condenser and Feed Water Heater.

Wheeler's Improved Marine Feed Water Heater.



Patent Combined Surface Condenser & Feed-Water Heater.